

CLAIMS

What is claimed is:

1. A method for handling data packets in a medium access control (MAC) layer comprising the steps of: receiving a data packet; forwarding said data packet to a hardware portion of said MAC layer in a receive chain; determining, in said hardware portion of said MAC layer in said receive chain, a packet type associated with said received data packet; selectively sending an indication directly to a hardware portion of said MAC layer in a transmit chain based on said packet type; and otherwise, sending an indication to a software portion of said MAC layer of said receive chain for generation of said response.
2. The method of claim 1, wherein said step of selectively sending said response based on said type-subtype of said data packet further comprises the step of: sending said response to said hardware portion of said MAC layer in said transmit chain if said packet type is one of: CF-Poll, PS-Poll, Data/Management- ACK and RTS-CTS.
3. The method of claim 1, wherein said step of determining said packet type further comprising the step of: determining a destination address of said data packet using an address filter.
4. The method of claim 1, wherein said step of selectively sending a response directly to said hardware portion of said MAC layer further comprises the step of: providing a receive action table in said hardware portion of said MAC layer in said receive chain, wherein said receive action table is indexed using said packet type to output said response.
5. The method of claim 1, wherein said hardware portion of said MAC layer is implemented in an application specific integrated circuit (ASIC).
6. The method of claim 1, wherein said software portion of said MAC layer is implemented in a general purpose microprocessor.
7. The method of claim 1, further comprising the steps of: receiving another data packet, from said software portion of said MAC layer, for transmission; providing a transmit action table in said hardware portion of said MAC layer in said transmit chain, wherein said transmit action table is indexed using said packet type to output a function for said hardware portion of said MAC layer to perform on selected packet types and destination address type; and selectively performing said function based upon a packet type of said another data packet.
8. The method of claim 7, wherein said function further comprises the step of: inserting a cyclic redundancy check (CRC) for said another data packet.

9. The method of claim 1, further comprising the step of: sending, as said response directly to said hardware portion of said MAC, an interrupt after a predetermined number of bytes have been received.

10. A wireless communication device comprising: means for receiving a data packet; a medium access controller (MAC) having a hardware portion and a software portion, wherein a packet type associated with said received data packet is determined in said hardware portion of said MAC; and a receive action table, in said hardware portion of said MAC, having hardware processing functions stored therein for selected packet types; wherein if said packet type of said received data packet is one of said selected packet types, then an associated hardware processing function is performed and otherwise wherein a response indication is forwarded to said software portion of said MAC.

11. The device of claim 10, wherein if said packet type is one of: CF-Poll, PS-Poll, Data/Management-ACK and RTS-CTS, then sending a response directly via said hardware portion of said MAC.

12. The device of claim 10, further comprising: an address filter, in said hardware portion of said MAC, for determining a destination address of said data packet.

13. The device of claim 10, wherein said hardware portion of said MAC is implemented in an application specific integrated circuit (ASIC).

14. The device of claim 10, wherein said software portion of said MAC is implemented in a general purpose microprocessor.

15. The device of claim 10, further comprising the steps of: a transmit action table in said hardware portion of said MAC, wherein said transmit action table is indexed using said packet type to output a function for said hardware portion of said MAC layer to perform on selected packet type-subtype; and wherein said hardware portion of said MAC selectively performs said function based upon a packet type when another data packet is forwarded for transmission by said device.

16. The device of claim 15, wherein said function further comprises: inserting a cyclic redundancy check (CRC) for said another data packet.